DISTRIBUTION OF *COLAPHELLUS HOEFTI* MEN. (COL. CHRYSOMELIDAE) IN NORTHEAST IRAN AND ITS WORLD DISTRIBUTION[1]

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ABSTRACT

In 1975 a survey of northeast Iran around Mashhad was made to determine the distribution of the Polyphagous beetle *Colaphellus hoefti* Men. Isolated populations of the insect were found at Sarachs, Mashhad, Toos, and Neyshabur, but around Kelati-Naderi the beetle was more widespread, feeding on the weed *Cardaria draba* L. and other uncultivated crucifers.

INTRODUCTION

The discovery of an extremely restricted infestation of *Colaphellus hoefti* at Toos near Mashhad demonstrated the presence of this pest in Northeast Iran (Sobhian 1975). *C. hoefti* attacks both wild and cultivated Cruciferae (Chesnokov 1936; Rodionov 1924; Romanova 1930; Sakharov 1929; Schreiner 1915; and Uvarov and Glazunov 1916). It is also reported to attack cotton (Plotnikov 1926). To determine the distribution of this pest in Northeast Iran, an extensive survey was conducted in spring 1975; this is the subject of this paper.

METHODS

An arid area covering 200-300 km. radius around Mashhad, shown in the detail map (Fig. 1), was studied. Since *C. hoefti* was first found in Toos feeding on *Cardaria draba* L., the search for the beetle was focused on the *Cardaria* plants as well as in all areas with good vegetation along the roads. I searched along the roads shown on the map (Fig. 1) and in the villages near the roads, examining the plants thoroughly for evidence of the beetle, often employing a sweep net. In localities where *Cardaria* grew extensively a systematic sampling plan was carried out. This consisted of surveying plots of about 2500 m^2 every 5 km; but in the 3 successive surveys, each 2500 m^2 area was at a different point. I conducted these surveys semimonthly during the period 15-III to 31-IV-75.

RESULTS

The distribution of *Colaphellus hoefti* appeared to be limited in the region south to southeast of the Hezarmasjed Mountains to only 4 localities: Sarachs, Mashhad, Toos, and Neyshabur. Population sites are shown

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on the map. Population densities in these areas were high, but these areas were exceedingly restricted. In contrast, in regions north of the mountains to which I had access to by road, the beetle was much more widespread; around Kelati-Naderi *C. hoefti* was present at all sites sampled.

DISCUSSION

The population center of *C. hoefti* is located in southern Russia. Rugged mountains, peaking at heights in excess of 3500 m, extend along most

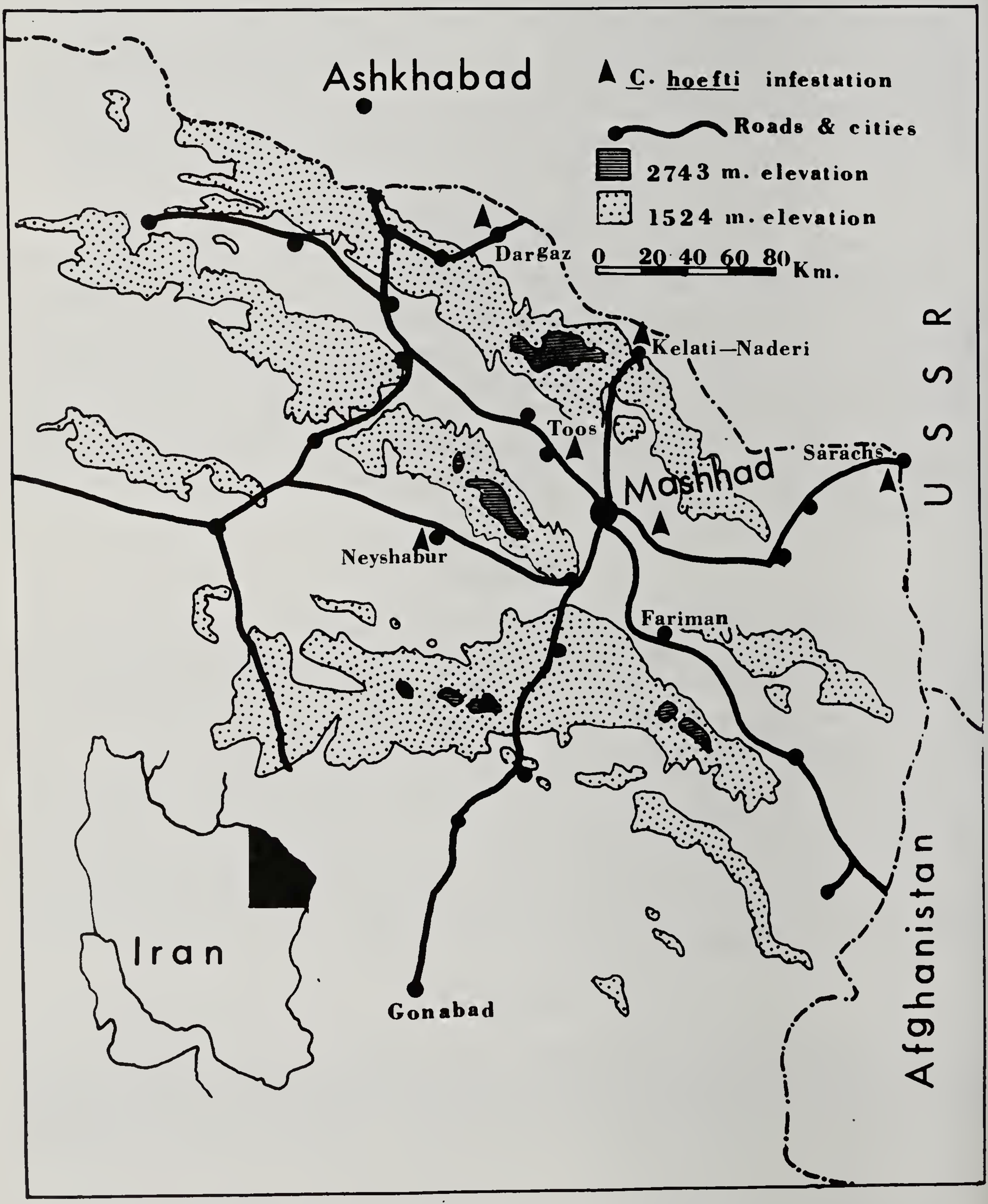

Fig. 1: Map of the area surveyed showing infestations of *C. hoefti.*

of the border between Russia and Iran, but there is a pass between the mountains in the area west of Sarachs. The beetle may have migrated from Russia to Iran through Sarachs and westward through the mountain pass to Mashhad and the surrounding area where it is now expanding its population. But if it is migrating in this manner, then why could I not find it along the road from Sarachs to Mashhad, and also on the way from Mashhad south to Neyshabur and Fariman? Perhaps *C. hoefti* has been accidently introduced into the infested areas by man or other agents; another possibility is that the intervening areas, such as the south side of Mashhad, are unsuitable for development of the beetle. To test suitability of these areas for development of *C. hoefti*, I inoculated the beetle into 2 test areas chosen at random among intervening areas not infested with the beetle, one at the south side of Mashhad and the other in Fariman. I will examine these test areas for presence of the beetle in an effort to better understand the possible invasion into Iran.

WORLD DISTRIBUTION

A review was made of the world literature on the genus *Colaphellus* and the species *C. hoefti*. As mentioned before, the distribution center of *C. hoefti* is in South Russia and North Caucasus; from there it radiates southward into Armenia, Turkey, and Iran (Balachowsky 1963; Chesnokov 1936; Plotnikov 1926; Rodionov 1924; Romanova 1930; Uvarov and Glazunov 1916; and Weise 1916). According to Weise and others, *C. hoefti* is absent from Middle Europe westward, but another species, *Colaphellus sophiae* Schall. is present (Freude *et al.* 1966). The genus *Colaphellus* is distributed in the Old World north of the equator, with the greatest concentration of species being found in South Russia, the Middle East, and Asia Minor (Balachowsky 1963; Chen 1936; Freude *et al.* 1966; Weise 1916 and 1919; and Winkler 1924-1932). The genus is apparently absent from Southern and Western Hemispheres (R. E. White *in litt.* 1976; Arnett 1963; Lhoste 1934; Leng 1920-48; Blackwelder 1946; and Bechyne 1950).

Many species of *Colaphellus*, including *C. hoefti*, attack cruciferous crops and thus wherever they may occur in the future they pose a potential threat to these plants.

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